

which has been made to a knowledge of Japan and its people; the translation seems to us to be well done.

THE next evening lecture of the Society for the Encouragement of the Fine Arts will be delivered by Mr. Lennox Browne, at the rooms of the Society in Conduit Street, on February 14. It will be entitled "Science and Singing," and will be elucidated by vocal and other illustrations.

FROM the *Adelaide Express and Telegraph* of December 31, 1883, we learn that Mr. Clement L. Wragge was about to start an astronomical and meteorological observatory on his own account on the banks of the Torrens. Observations of the usual meteorological elements were to be commenced on Jan. 1, 1884. The meteorological instruments comprise mercurial barometers, a barograph, numerous self-registering and other thermometers by the best makers and Kew verified; besides rain-gauges, ozone tests, rain-band spectroscope, and other appliances used by Mr. Wragge at the Ben Nevis Observatory. He hopes to train an assistant, who will carry on the work during any prolonged absence. The house is to be called the Torrens Observatory, and is admirably situated on Stephens Terrace, Gilberton, two miles from Adelaide.

ON the proposal of M. de Lesseps, the Paris Geographical Society has decided to publish the biographies of all the French travellers of the present century.

THE *Journal of the Society of Arts* for February 1 contains two papers of special interest. One by Mr. J. G. Colmer, the Secretary to the Canadian High Commissioner, tells what the British Association will find in Canada on its visit in August next; the other is a paper of much practical value, by Mr. Thomas Fletcher, on coal-gas as a labour-saving agent in mechanical trades.

WE learn from a communication from Orkney that on January 27 at 3 a.m. the barometer fell to 27.508, and that the tide was unusually high. At Dundee the lowest record was 27.382 at 10.30 p.m. on the 26th, while the velocity of the wind is given at from fifty to sixty-five miles per hour. In Orkney a velocity of eighty-eight miles was recorded by the anemograph.

It appears from the researches of M. Sokoloff that the water of the Neva at St. Petersburg, at a depth of 9 feet, is very pure when compared with the water supplied to other large cities. The matter in suspension in 1 cubic metre of water (in September and October) does not exceed 5.5 grm., and sometimes it is so small as to be less than 0.02 grm. The mineral matter dissolved varies from 31.0 to 38.1 grm., and the organic matters reach but 18.7 to 22.5 grm. The average for August and September is 20.4 grm. of organic matter and 31.6 of inorganic; for October, 21.7 and 33.9 grm. respectively.

CAPTAIN STUB, Corresponding Member of the Society of Arts at Smyrna, writes to Mr. Hyde Clarke that "the cold wave which was passing over America reached here last Sunday, January 21, and for Smyrna the cold was intense. I am told in exposed positions the thermometer went down to 10° below zero. At the point near the railway station I saw ice one inch thick. On the 24th the weather became milder."

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Dr. Harrison Branthwaite; a Bonnet Monkey (*Macacus sinicus* ♂) from India, presented by Mr. E. F. Shortt; a Quebec Marmot (*Arctomys monax*) from Virginia, U.S.A., presented by Mr. G. S. White; a Long-eared Owl (*Asio otus*) from Germany, presented by Master Owen Dallmeyer; a Water Rail (*Rallus aquaticus*), British, presented by Mr. T. E. Gunn; a West African Python (*Python sebae*) from West Africa, presented by Capt. J. Grant Elliott; five European Tree Frogs

(*Hyla arborea*) from France, presented by Miss E. Brunton; a European Tree Frog (*Hyla arborea*), South European, presented by the Rev. J. Stapledon Webber; a Rhesus Monkey (*Macacus rhesus*) from India, a Common Wolf (*Canis lupus*), European, a Fallow Deer (*Dama vulgaris* ♀), British, two Chattering Lories (*Lorius garrulus*) from Moluccas, two Vieillot's Firebacks (*Euplocamus vieilloti* ♂ ♀) from Malacca, deposited; a Sykes's Monkey (*Cercopithecus albigularis*), a Gray-cheeked Mangabey (*Cercocebus albigena* ♀) from West Africa, two Spotted Hyænas (*Hyæna crocuta* ♂ ♀) from South Africa, a Red-vented Parrot (*Pionus menstruus*) from Brazil, a Golden Eagle (*Aquila chrysaetos*), a Tawny Eagle (*Aquila naevioides*), a White-tailed Eagle (*Haliaeetus albicilla*), a Cinereous Vulture (*Vultur monachus*), seven Knots (*Tringa canutus*), European, a Temminck's Snapper (*Macroclermys temmincki*) from North America, purchased.

OUR ASTRONOMICAL COLUMN

THE COMET OF 1664.—"Cette comète de 1664," remarks Pingré, in introducing the description of it given in his "Cométographie," "a singulièrement exercé les presses des Imprimeurs," and that this statement was justified will be evident to any one who may consult Lalande's "Bibliographie," the catalogue of the library in the Observatory of Pulkowa, or the "Repertorium der Cometen-Astronomie," by Dr. Carl of Munich; in the latter will be found references to some eighty works, either treating specially upon this comet, or in which it is noticed in more or less detail. And further, as Mädler observes: "Lubienietzky hat über ihn allein einen ganzen Quartband geschrieben, der freilich für unsere Zwecke sich auf einige Seiten reducirt;" the volume here referred to is the first of the "Theatrum Cometicum."

This comet appears to have been discovered in Spain as early as November 17. Huyghens observed it at Leyden on December 2, while the observations of Hevelius at Dantzic, which have been used exclusively in the determination of the orbit, commenced on December 14, and it was generally observed in France and Italy about the same time. Observations properly so-called do not appear to have been made in this country, and on scanning the long list of publications enumerated by Carl we find, in addition to a notice by J. Ray in the *Philosophical Transactions* for 1707, only two works named as having been printed here: (1) "An Astronomical description of a comet as it appeared in new England, in the year 1664;" and (2) "The blazing star, or a discourse of Comets. In a letter from J. B. to T. C. concerning the late comet." Flamsteed was then an ailing youth, and though given to astronomical exercises he has no reference to the comet in question. Indeed, in his account of his early life we read: "I had now completed eighteen years, when the winter (that of 1664-1665) came on and thrust me again into the chimney, whence the heat and the dryness of the preceding summer had happily once before withdrawn me;" and he thus attended rather to calculation from Street's "Caroline Tables," which he had just procured, than to observations.

The comet was not suffered to remain without notice by Samuel Pepys, and we find several references to it in his "Diary," which it may not be quite without interest to examine. Pepys records the old style dates, but we reduce them to the present reckoning. The first notice of the comet is on December 27, and runs thus: "Mighty talk there is of this comet that is seen a' nights; and the King and Queen did sit up last night to see it, and did it seems. And to-night I thought to have done so too; but it is cloudy, and so no stars appear. But I will endeavour it." On the night of December 26 the comet would rise in London just before eleven o'clock, and would be on the meridian at two o'clock at an altitude of less than nine degrees, in R.A. 126° 4, and declination 30° 0 south, distant from the earth 0.193. The apparent length of the tail (37") mentioned by Carl, assigns a real length of 43,000,000 miles, if it were in the line of the radius-vector. On December 31 we read: "My Lord Sandwich this day writes me word that he hath seen (at Portsmouth) the comet, and says it is the most extraordinary thing he ever saw." On January 3 Pepys says: "I saw the comet, which is now, whether worn away or no I know not, but appears not with a tail, but only is larger and duller than any other star, and is come to rise betimes, and to make a great arch, and is gone to quite a new place in the heavens than it was before; but I hope in a clearer

night something more will be seen." At eight o'clock on the evening of January 3 the comet was in R.A. $47^{\circ}5$, declination $1^{\circ}5$ south, distant from the earth 0.276; the moon was at full two days previously, so that the tail might have been in great measure overpowered by her light in the indifferent state of the sky. Pepys has no further reference to the comet till March 11, when the "Diary" says: "To Gresham College, where Mr. Hooke read a second very curious lecture about the late comet; among other things proving very probably that this is the very same comet that appeared before in the year 1618, and that in such a time probably it will appear again, which is a very new opinion; but all will be in print." We do not remember to have met with other reference to this opinion of Hooke's, though probably such must exist; and it is not easy to explain upon what grounds he founded the idea. The comet referred to was the third of 1618, which, to use Pingré's phrase, almost exercised the printing-press as much as that of 1664. It was observed by Harriot at Sion House, Isleworth, or, as it was then called, Thistleworth.

GEOGRAPHICAL NOTES

OUR readers may have noticed that Dr. Holub had met with unexpected difficulties at the Cape in the prosecution of his journey into the African interior, the Cape authorities insisting on payment of the full duty on the traveller's scientific equipment. It will be seen from the following communication, which has been sent us for publication, that the difficulty has been happily and promptly settled:—"Downing Street, February 2, 1884.—Sir,—I am directed by the Earl of Derby to acknowledge the receipt of your letter of the 29th ult., relative to the exploring expedition undertaken by Dr. Holub in South Africa; and I am to acquaint you, for the information of Sir Joseph Hooker, that a telegram has been sent to the officer administering the Government of the Cape of Good Hope, requesting that special concessions may be made in respect to the Customs duties, and that support may be afforded to Dr. Holub in the prosecution of his enterprise. A despatch to the same effect will follow by the outgoing mail.—I am, &c. (signed), ROBERT G. W. HERBERT.—The Assistant Director, Royal Gardens, Kew."

IN the *Bolletino* of the Italian Geographical Society for January an account is given of a curious manuscript recently presented to the Society by Count Pietro Antonelli. It forms a bulky codex of 125 sheets of parchment, consisting mostly of formulas and magic incantations written in the old Giz (Ethiopic) language with a large admixture of Amharic. Amongst the contents is also the *Aud Neges't*, or Royal Circular, comprising sixteen circles, each of which occupies a whole page of the codex. All are divided into sixteen segments, each containing some text on the various incidents of human existence, which are afterwards expounded in greater detail. Then come thirty chapters, each divided into fifteen lines, every one of which contains some sentence or aphorism. The donor has received the King Humbert gold medal for the scientific work accomplished by him in the Italian settlement of Assab and neighbouring district. The same number of the *Bolletino* contains a description of the interesting collection presented last year to the prehistoric ethnographic museum at Rome by M. van Oordt of Leyden. This collection comprises a beautiful series of amulets, musical instruments, costumes and all kinds of personal ornaments used by the Maronites of the Lebanon, the Druses of Hauran and other Syrian populations. Some have a considerable intrinsic value, while others are noteworthy for their rarity and the elegance of their forms and ornamentation. One of the most remarkable objects is the girdle worn by rich Bedouin and Druse brides, consisting of a broad many-coloured silken sash with a large silver clasp nearly oval at both extremities. It is opened by means of a needle, and embellished with conic filigree buttons and silver chains, from which are suspended little globules, crescents, and other charms.

THE *Sydney Morning Herald* of December 27, 1883, says:—"An exploring party, under the leadership of Mr. Charles Winnicke, an experienced explorer and bushman, has just made a successful journey through a large portion of unknown country in the interior of Australia. The party was provided with camels and horses, but the latter were never required. Mr. Winnicke made a start from Cawarrrie station, on the Warburton River, in latitude 28° S., and traversed the country to the north as far as latitude 27° , effecting a connection with previous explorations

near Goyder's Pillars. A most remarkable natural feature in the Taitlon Range was discovered by Mr. Winnicke during his Herbert River explorations. Several long stages without water were encountered a few days after the party left Cawarrrie station, and a distance of 200 to 300 miles had to be traversed across the highest sand ridges in Australia before water could again be obtained. Many more long stages of between 100 and 200 miles without water were travelled. In many instances the sand ridges, which were from 300 to 400 feet high, and very steep, had to be crossed at right angles. Two large rivers and an extensive range were discovered near the Queensland boundary, and altogether Mr. Winnicke succeeded in mapping about 40,000 square miles of unknown country, which will help to fill in another large blank space on the map of Australia.

MR. O'NEILL, who arrived at Mozambique on February 4, after having traversed 1400 miles of unexplored country, situated between Mozambique and Lake Nyassa, has discovered Lake Amarambu, the existence of which was previously unknown, and which he declares to be the true source of the Pienda(?) River. Mr. O'Neill reports Lake Shirwa to be smaller than has been represented. On his return Mr. O'Neill followed the Likelungo Valley, which he found to be well populated.

DR. CHAVANNE will start in a few days on his expedition to the interior of Africa, undertaken for the Belgian "Institut National de Géographie." He will employ the first eight months of his time in drawing up an accurate chart of the Congo; and then penetrate from Leopoldville to the north to explore the hitherto unknown districts lying in that direction and the water-courses. It must depend on circumstances whether he will effect his return along the Nile, by Zanzibar, or by the Congo. The provisional chart of the Congo, which was published a short time since in America, is now sold here.

IN vol. xix. of the *Izvestia* of the Russian Geographical Society we find the results obtained by M. Grinevetsky during his journey across Novaya Zemlya in the spring of 1878. The country is a plateau, about 450 feet above the sea-level, with deep valleys in which several lakes are concealed. The rivers cut deeply into the plateau. The south-eastern winds blow freely on the plain, denuding it of its snow covering. Three different parts may be distinguished in the southern island of Novaya Zemlya: the northern part, which is covered by mountains quite unknown, is bounded on the south by the Pukhovaya River. The middle part is covered by five or six parallel chains of hills, the highest summits of which reach 800 feet; they run north-west, close to the western coast, having a wide plateau to the east. The southern part is a plateau not more than 450 feet high, and M. Grinevetsky doubts very much if there are mountains 2000 feet high, as has been stated. One observation of M. Grinevetsky is worthy of notice. It is most probable, he says, that there are two varieties of reindeer in Novaya Zemlya. One of them inhabits the southern island, and the other, which does not mix with the former, inhabits only the northern island; it is said by the hunters to be much like that of Spitzbergen. In fact the Russian hunters have found very often on Spitzbergen a kind of reindeer with cut ears, which, they are persuaded, comes from Novaya Zemlya. In the Report of the Polar Commission in the *Izvestia* of the Russian Geographical Society (1871) reasons were given for believing, along with Baron Shilling, in the existence of an archipelago to the north-west of Novaya Zemlya (the feebleness of the cold sea current in Barents Sea, and the large quantities of mud and gravel seen on the floating ice north-west of Novaya Zemlya). The remark of the hunters was also referred to, and the opinion expressed that, if such an archipelago existed, the Novaya Zemlya reindeer really might cross the sea during favourable years, reach this archipelago, and thence continue their migrations to Spitzbergen. The discovery of Franz Josef Land renders this supposition still more probable, especially if the Franz Josef archipelago extends farther to the east, which extension seems most probable, on account of the feebleness of the polar current that enters Barents Sea, which surely would be much stronger if the space between Novaya Zemlya and the North Pole were occupied entirely by an open sea. The observation of M. Grinevetsky again raises this question: Is it true that the Novaya Zemlya reindeer afford so many distinct affinities with the Spitzbergen reindeer as to be considered as belonging to the same sub-variety? And if so, how explain these affinities without admitting (as the hunters do) that the reindeer in his migrations